

REMARKS

Response to Examiner's Response to Arguments

In the Non Final Office Action mailed August 3, 2006, the Examiner indicated that the Applicants' arguments filed 5/9/06 were fully considered but were not considered to be persuasive. The Examiner basically made three statements: that the claims claim a "substantially constant" profile; that the claims do not recite the feature relied upon; and that Hawthorne "clearly" teaches a cross-sectional profile of the plate that is substantially constant along at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate. These statements will be addressed in turn.

Concerning usage of the phrase "substantially constant", the Examiner stated that this means that the cross-sectional profile does not have to be constant. The Examiner is correct, and the Applicants appreciate the Examiner's confirmation of this point. The use of "substantially" in these claims is in accordance with well-established and conventional practice that avoids an unreasonably strict and literalistic interpretation of the claims. In this regard, the Court of Appeals for the Federal Circuit ("CAFC") defined "substantially" as having its ordinary meaning of "largely but not wholly that which is specified." *Ecolab, Inc. v. Envirochem, Inc.*, 264 F.3d 1358, 60 USPQ2d (BNA) 1173 (Fed. Cir. 2001). The CAFC has also held that the word "substantially" gives some definitional leeway. *Seattle Box Co. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 829 (Fed. Cir. 1984). The word avoids undue limits to the words that "substantially" modifies. *C.E. Equip. Co. v. United States*, 13 USPQ2d (BNA) 1365, 1369 (N.D. Tex. 1990); *In re Hauserman, Inc.*, 15 USPQ2d (BNA) 1157, 1158 (1989). Such usage of "substantially" in claims also appears, for example, in several of the patents of record in the present application (e.g., Zuo, Ommen, Lischner, & Takano).

Thus, the phrase "substantially constant" in the present claims, in accordance with the above-cited case law, means that the cross-sectional profile (i.e., the entire shape of the cross-section) is largely but not necessarily wholly that which is specified (*Ecolab, Inc. v. Envirochem, Inc.*, *supra*). As will be shown immediately below, Hawthorne is not "largely constant" in Hawthorne's cross-sectional profile, but instead forms significantly different

profiles that are in no respect largely the same or largely constant (Ecolab, Inc. v. Envirochem, Inc., *supra*).

Concerning the statement that the features upon which the Applicants rely are not recited in the claims, that assertion is respectfully traversed as clearly erroneous. Every pending claim includes the limitation that the cross-sectional profile is substantially constant along at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate.

Concerning the statements about Hawthorne, it is respectfully pointed out that, contrary to the Examiner's assertions, Figures 3–4 and 9–10 of Hawthorne clearly show that Hawthorne's cross-sectional profiles change dramatically along any horizontal direction, and are absolutely not substantially constant.

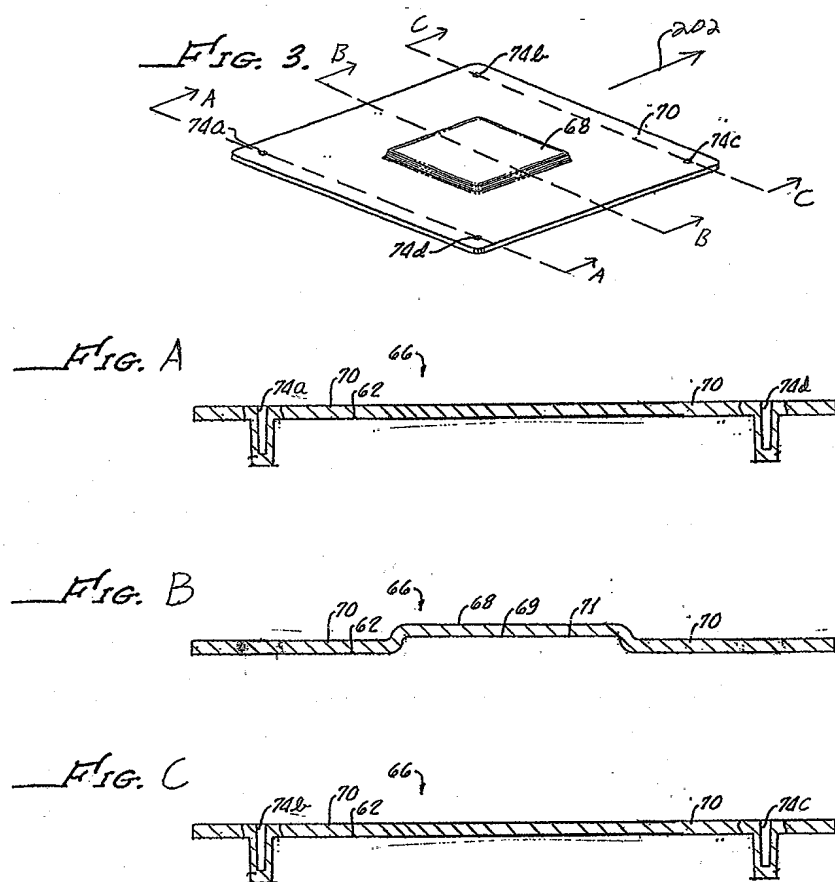
To clarify this last point, it is first pointed out that a cross-section is a surface or plane that is exposed by making a cut through an object. See, for example, MPEP §608.02(V)(h)(3) (“The plane upon which a sectional view is taken...” [underlining for clarity]). With that in mind, the claims recite that the constancy of the various cross-sections (the “cross-sectional profile”) is considered in a horizontal direction (e.g., the arrow 202). That means that the cross-sections are taken vertically and their constancy is tested horizontally.

To illustrate Hawthorne's lack of a substantially constant cross-sectional profile, representative cross-sectional drawings of Hawthorne's heat spreader have been prepared and are presented immediately below. These are based upon figures 3–4 of Hawthorne. The very same considerations and results obtain with respect to Hawthorne's Figures 9–10.

Referring to the illustrations presented immediately below, vertical cross-sectional views A, B, and C have been taken through the Hawthorne heat spreader on respective section lines A–A, B–B, and C–C, moving in the horizontal direction of arrow 202. Arrow 202 is the same arrow that appears in the drawings of the present application, and is perpendicular to the planes of the cross-sections A, B, and C. Clearly, the cross-sectional profiles (i.e., the entire shapes of the cross-sections, not just the thicknesses of the panels) in Figures A, B, and C are substantially different. Figures A and C have standoff pins 74 along each side and are flat at the center. But the cross-sectional profile of the heat spreader is significantly different in Figure B, where there are no pins and there is a significant hump in

the middle. There can therefore be no doubt that, in the horizontal direction 202, the Hawthorne cross-sectional profile is not substantially constant, but in fact changes very significantly. Likewise, there is no other horizontal direction along which the perpendicular cross-sectional profile of Hawthorne's plate is either constant or even substantially constant. Thus, Hawthorne does not disclose a cross-sectional profile that is substantially constant along at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate, as claimed explicitly herein.

In view thereof, it is submitted that the claims are in condition for allowance. Reconsideration of the rejections and allowance of claims 1-10 and 21-30 are accordingly respectfully requested.



Claim Rejections - 35 USC §102

Claims 1-10 and 21-30 are rejected under 35 U.S.C. §102(b) as being anticipated by Hawthorne et al. (U.S. Patent No. 6,008,991, hereinafter “Hawthorne”).

Hawthorne provides packaged integrated circuits (“ICs”) with heat spreading standoff support members. An IC device is mounted on a circuit board. Each IC device includes a thin dielectric substrate bearing a plurality of conductive leads. A die is positioned in a hole in the substrate. The die has pads that are bonded to leads carried by the substrate. The leads include free outer ends for connection to contact pads on the circuit board. The free leads are isolated from pressure applied to the chip-on-tape assembly after it has been connected to a circuit board by means of a thin self-supporting thermally conductive heat spreader. The heat spreader contacts the side of the die opposite its pads and includes fixed standoff and/or alignment pins. The pins extend through alignment holes in the thin substrate and are in physical contact with the printed circuit board.

Regarding claims 1–10 and 21–30, the Applicants respectfully traverse the rejection since the Applicants’ claimed combination, as exemplified in claim 1, includes the limitation not disclosed in Hawthorne of:

“a cross-sectional profile of the plate that is substantially constant along at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate”

The Examiner states in the Office Action dated August 3, 2006:

“a cross-sectional profile of the plate that is substantially constant along at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate (see figures 3-4, 9-10)”

However, as demonstrated and illustrated above, Hawthorne does not disclose a cross-sectional profile of the plate that is substantially constant along at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate. Figures 3–4 and 9–10 of Hawthorne, and Figures A, B, and C above, clearly show that Hawthorne’s heat spreader profile is not constant but instead changes significantly in every horizontal direction. Likewise, Hawthorne’s written description of the heat spreader 66 fails to teach or disclose forming a cross-sectional profile that is substantially constant in at least one horizontal direction, as explained in Hawthorne column 5, lines 19–31, which states:

“...a heat spreader, generally indicated at 66. The heat spreader is formed of a rigid, strong, self-supporting, thermally conductive material...

The heat spreader is either molded or stamped in the configuration shown, having a somewhat raised central die receiving section 68 surrounded by lateral sections 70...” [deletions and underlining for clarity]

Thus Hawthorne does not disclose forming a cross-sectional profile of the plate that is substantially constant along at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate, as claimed.

It is therefore respectfully submitted that independent claims 1, 9, 21, and 29, and the respective claims 2–8, 10, 22–28, and 30, depending therefrom, are not anticipated by Hawthorne under 35 USC §102(b) because:

“Anticipation requires the disclosure in a single prior art reference disclosure of each and every element of the claim under consideration.” *W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 960, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)), *cert. denied*, 469 U.S. 851 (1984). *Carella v. Starlight Archery*, 804 F.2d 135, 138, 231 USPQ 644, 646 (Fed. Cir.), *modified on reh’g*, 1 USPQ 2d 1209 (Fed. Cir. 1986); *RCA Corp. v. Applied Digital Data Sys., Inc.*, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984).

Withdrawal of the rejection is therefore respectfully requested.

Regarding claims 2–8, 10, 22–28, and 30, these dependent claims each depend from respective independent claims 1, 9, 21, and 29, and are believed to be allowable since they contain all the limitations set forth in the independent claims from which they respectively depend and additionally claim non-obvious combinations thereof. Withdrawal of the rejections of claims 2–8, 10, 22–28, and 30 is therefore respectfully requested because of *W.L. Gore & Assocs. v. Garlock, Inc.* and the other cases cited therewith, *supra*.

Regarding claims 4 and 24, the Applicants also respectfully traverse the rejection since the Applicants’ claimed combination includes the limitation not disclosed in Hawthorne of:

“forming an electromagnetic interference shield for the channel”

The Examiner states in the Office Action:

“forming an electromagnetic interference shield for the channel (114, so that the magnetic field won't able to go through the metal shield)”

However, Hawthorne's element 114 is a heat spreader, not an electromagnetic interference shield. In fact, Hawthorne makes no reference to forming an electromagnetic interference shield, nor anywhere uses the terms “electromagnetic”, “interference”, or “shield”. Since there is no disclosure, teaching, or suggestion in Hawthorne of the claimed limitation, the Applicants again respectfully request an Examiner Affidavit disclosing the Examiner's personal knowledge regarding this limitation pursuant to 37 CFR §1.104(d)(2) (2002):

“When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons.”

Additionally, the Examiner has neither provided the previously requested Examiner Affidavit nor answered the Applicants' prior arguments, repeated just above, concerning this traversed issue, as required by MPEP §707.07(f), which provides:

“707.07(f) Answer All Material Traversed [R-3]

...

Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it.

...

ANSWERING ASSERTED ADVANTAGES

...

The importance of answering applicant's arguments is illustrated by *In re Herrmann*, 261 F.2d 598, 120 USPQ 182 (CCPA 1958) where the applicant urged that the subject matter claimed produced new and useful results. The court noted that since applicant's statement of advantages was not questioned by the examiner or the Board of Appeals, it was constrained to accept the statement at face value and therefore found certain claims to be allowable. See also *In re Soni*, 54 F.3d 746, 751, 34 USPQ2d 1684, 1688 (Fed. Cir. 1995) (Office failed to rebut applicant's argument).” [underlining for clarity]

Such a failure to provide an explanation was also criticized by the Board in *Ex parte* Schricker:

“The examiner has left applicant and the board to guess at the basis of the rejection and after having us guess would have us figure out (i.e., further guess) what part of which [prior art] document supports the rejection. We are not good at guessing; hence, we decline to guess.” *Ex parte* Schricker, 56 USPQ2d 1723 (B.P.A.I. 2000) (unpublished).

Accordingly, it is respectfully submitted that the Applicants are entitled to withdrawal of this rejection and to allowance of claims 4 and 24 per MPEP §707.07(f) and *Ex parte* Schricker. Allowance of claims 4 and 24 is accordingly respectfully requested.

Regarding claims 5, 10, 25, and 30, the Applicants also respectfully traverse the rejection since the Applicants’ claimed combination includes the limitation not disclosed in figures 9-10 of Hawthorne of:

“forming...auxiliary heat spreader” [deletions for clarity]

The Examiner states in the Office Action:

“forming...auxiliary heat spreader configured for attachment on top of the semiconductor heat spreader (see figures 9-10).” [deletions for clarity]

However, the structures in figures 9-10 of Hawthorne are shipping trays, not auxiliary heat spreaders. Withdrawal of the rejection is therefore respectfully requested on this ground as well because of *W.L. Gore & Assocs. v. Garlock, Inc.* and the other cases cited therewith, *supra*.

Additionally, the Examiner has not answered the Applicants’ prior arguments, repeated just above, concerning this traversed issue, as required by MPEP §707.07(f). Accordingly, it is respectfully submitted that the Applicants are entitled to withdrawal of this rejection and to allowance of claims 5, 10, 25, and 30 per MPEP §707.07(f) and *Ex parte* Schricker. Allowance of claims 5, 10, 25, and 30 is accordingly respectfully requested.

Regarding claims 6, 10, 26, and 30, the Applicants also respectfully traverse the rejection since the Applicants' claimed combination includes the limitation not disclosed in Hawthorne of:

"forming attachment means...selected from tabs, locking tabs, deformable sides, side ledges, side clips, clip bosses, center clips, side arms, and a combination thereof." [deletions for clarity]

The Examiner states in the Office Action:

"forming attachment means...selected from tabs, locking tabs, deformable sides, side ledges, side clips, clip bosses, center clips, side arms, and a combination thereof (legs, 124/126/158/160)" [deletions for clarity]

However, Hawthorne makes no reference to forming attachment means selected from tabs, locking tabs, deformable sides, side ledges, side clips, clip bosses, center clips, side arms, and a combination thereof, nor discloses those of the present invention, as claimed in claims 6, 10, 26, and 30. The legs 124/126/158/160 of Hawthorne cited by the Examiner are legs of the shipping tray sections, not attachment means for an auxiliary heat spreader. Withdrawal of the rejection is therefore respectfully requested on this ground as well because of *W.L. Gore & Assocs. v. Garlock, Inc.* and the other cases cited therewith, *supra*.

Additionally, the Examiner has not answered the Applicants' prior arguments, repeated just above, concerning this traversed issue, as required by MPEP §707.07(f). Accordingly, it is respectfully submitted that the Applicants are entitled to withdrawal of this rejection and to allowance of claims 6, 10, 26, and 30 per MPEP §707.07(f) and *Ex parte* Schricker. Allowance of claims 6, 10, 26, and 30 is accordingly respectfully requested.

Regarding claims 7 and 27-28, the Applicants also respectfully traverse the rejection since the Applicants' claimed combination includes the limitation not disclosed in Hawthorne of:

"form an integral auxiliary heat spreader"

The Examiner states in the Office Action:

"...form an integral auxiliary heat spreader located on top of the panel (see figures 4, 9, 10)." [deletions for clarity]

However, there is no auxiliary structure in figure 4 of Hawthorne, and the structures in figures 9-10 of Hawthorne are shipping trays, not auxiliary heat spreaders. Withdrawal of the rejection is therefore respectfully requested on this ground as well because of *W.L. Gore & Assocs. v. Garlock, Inc.* and the other cases cited therewith, *supra*.

Additionally, the Examiner has not answered the Applicants' prior arguments, repeated just above, concerning this traversed issue, as required by MPEP §707.07(f). Accordingly, it is respectfully submitted that the Applicants are entitled to withdrawal of this rejection and to allowance of claims 7 and 27-28 per MPEP §707.07(f) and *Ex parte* Schricker. Allowance of claims 7 and 27-28 is accordingly respectfully requested.

Regarding claims 8, 9, 21, and 29, the Applicants also respectfully traverse the rejection since the Applicants' claimed combination includes the limitation not disclosed in Hawthorne of:

“forming the unitary metallic plate in substantially a single metal forming process into a cross-sectional profile that is substantially constant in at least one horizontal direction.”

The Examiner states in the Office Action:

“...forming the unitary metallic plate in substantially a single metal forming process into a cross-sectional profile that is substantially constant in at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate (see figures 3-4, 9-10).” [deletions for clarity]

However, Hawthorne makes no reference to forming a cross-sectional profile that is substantially constant in at least one horizontal direction that is perpendicular to the cross-sectional profile of the plate, nor discloses forming the constant profile of the present invention as claimed in claims 8, 9, 21, and 29. Withdrawal of the rejection is therefore respectfully requested on this ground as well because of *W.L. Gore & Assocs. v. Garlock, Inc.* and the other cases cited therewith, *supra*.

Additionally, the Examiner has not answered the Applicants' prior arguments, repeated just above, concerning this traversed issue, as required by MPEP §707.07(f). Accordingly, it is respectfully submitted that the Applicants are entitled to withdrawal of this

rejection and to allowance of claims 8, 9, 21, and 29 per MPEP §707.07(f) and *Ex parte* Schricker. Allowance of claims 8, 9, 21, and 29 is accordingly respectfully requested.

Conclusion

In view of the above, it is submitted that the claims are in condition for allowance and reconsideration of the rejections is respectfully requested. Allowance of claims 1–10 and 21–30 at an early date is solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including any extension of time fees, to Deposit Account No. 50-0374 and please credit any excess fees to such deposit account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mikio Ishimaru", written in a cursive style.

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